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LSI CORPORATION
1621 BARBER LANE
MS: D-106
MILPITAS, CA 95035

EXAMINER	
RAO, ANAND SHASHIKANT	
ART UNIT	PAPER NUMBER
2621	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/600,079	LINZER, ELLIOT N.	
	Examiner	Art Unit	
	Andy S. Rao	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 6/28/07.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-25 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-25 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's arguments with respect to claims 1-25 as filed on 6/28/07 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jeon in view of Kato et al., (hereinafter referred to as "Kato") and Prakasam et al., (US 2004/0240559 A1 hereinafter referred to as "Prakasam").

Jeon discloses a method for representing a motion for two blocks (Jeon: paragraph [0014], lines 1-9), comprising the steps of: exchanging a particular value of a plurality of values, each of said values defining which of said two blocks use which of a plurality of motion vectors (Jeon: paragraph [0023], lines 1-12) based upon one of a plurality of prediction types (Jeon: paragraph [0005], lines 1-6), wherein said prediction types include (i) a first prediction type if said two blocks using a first reference picture list (Jeon: paragraph [0007], lines 1-10) and (ii) a second prediction type of said two blocks using a second reference picture list (Jeon: paragraph [0007], lines 11-15); (iii) a third prediction type of said two blocks using a bidirectional prediction (Jeon: paragraph [0004], lines 1-4: bi-directional mode) and (iv) a fourth prediction

type of said two blocks using an intra prediction (Jeon: paragraph [0004], lines 1-4: intra-mode), and representing said motion for said two blocks with a group comprising said particular value and up to all of said motion vectors (Jeon: paragraph [0055], lines 1-12), as in claim 1. However, Jeon fails disclose exchanging a particular value with a memory wherein said exchanging includes at least one of reading to from said memory and writing to said memory to implement steps of the method or the fact that the two blocks use a macroblock adaptive field/frame coding scheme, as in the claim. Kato discloses a method for representing a motion for two blocks (Kato: column 34, lines 65-67; column 35, lines 1-20) by using a memory and associated circuitry (Kato: column 23, lines 40-50) in order to perform the motion vector calculations for predictions (Kato: column 1, lines 50-65). Accordingly, given this teaching, it would have obvious for one of ordinary skill in the art to incorporate the Kato memory and associated circuitry to implement the exchanging steps into the Jeon method in order to more efficiently perform the Jeon calculations for predictions (Jeon: paragraph [0053], lines 10-13). The Jeon method, now implemented in the Kato memory and associated circuitry for implementing the exchanging step, has a majority of the features of claim 1, however, the Jeon-Kato combination still fails to address having the two blocks using a macroblock adaptive field/frame coding scheme, as in the claim. Prakasam discloses the use of a macroblock adaptive field/frame coding scheme (Prakasam: paragraph [0069], lines 1-11; paragraph [0071], lines 1-7; paragraph [0072], lines 10-17) in order to minimize storage requirements in the references (Prakasam: paragraph [0074], lines 1-3). Accordingly, given this teaching it would have been obvious for one of ordinary skill in the art at the time of the invention to incorporate the Prakasam teaching of using a macroblock adaptive field/frame coding scheme into the Jeon-Kato combination in order to minimize the storage

requirements of the reference buffers/memories therein. The Jeon method, now implemented in the Kato memory and associated circuitry for implementing the exchanging step and the incorporating the Prakasam macroblock adaptive field/frame coding scheme, has all of the features of claim 1.

Regarding claim 2, the Jeon method, now implemented in the Kato memory and associated circuitry for implementing the exchanging step and the incorporating the Prakasam macroblock adaptive field/frame coding scheme, has wherein said group has at most a plurality of bits that is less than a maximum number of bits capable of representing each unique possibility for said motion vectors (Jeon: paragraph [0055], lines 1-13), as in the claim.

Regarding claims 3-4, the Jeon method, now implemented in the Kato memory and associated circuitry for implementing the exchanging step and the incorporating the Prakasam macroblock adaptive field/frame coding scheme, has wherein a first plurality of said motion vectors corresponding to a first of said two blocks matches a second plurality of said motion vectors corresponding to a second of said two blocks (Jeon: paragraph [0101], lines 1-8), as in the claims.

Regarding claims 5-6, the Jeon method, now implemented in the Kato memory and associated circuitry for implementing the exchanging step and the incorporating the Prakasam macroblock adaptive field/frame coding scheme, has wherein said group includes at most two of said motion vectors (Jeon: paragraphs [0108-0109], lines 1-15), as in the claims.

Regarding claim 7, the Jeon method, now implemented in the Kato memory and associated circuitry for implementing the exchanging step and the incorporating the Prakasam

macroblock adaptive field/frame coding scheme, has wherein one of said values defines using none of said motion vectors (Jeon: paragraph [0096], lines 1-4), as specified.

Regarding claim 8, the Jeon method, now implemented in the Kato memory and associated circuitry for implementing the exchanging step and the incorporating the Prakasam macroblock adaptive field/frame coding scheme, has further comprising the step of: using a list 0 prediction of said prediction types with said motion vectors, wherein said motion vectors comprises two motion vectors and each of said two motion vectors is used for a different one of said two blocks (Jeon: paragraph [0100], lines 1-4), as in the claim.

Regarding claim 9, the Jeon method, now implemented in the Kato memory and associated circuitry for implementing the exchanging step and the incorporating the Prakasam macroblock adaptive field/frame coding scheme, has using a list 1 prediction of said prediction types with said motion vectors, wherein said motion vectors comprises two motion vectors and each of said two motion vectors is used for a different one of said two blocks (Jeon: paragraph [0100], lines 1-4), as in the claim.

Regarding claim 10, the Jeon method, now implemented in the Kato memory and associated circuitry for implementing the exchanging step and the incorporating the Prakasam macroblock adaptive field/frame coding scheme, has wherein under said bidirectional prediction of said prediction types for said motion vectors, each of said motion vectors is used for both of said two blocks (Jeon: paragraph [0006], lines 10-17), as in the claim.

Regarding claims 11-12, the Jeon method, now implemented in the Kato memory and associated circuitry for implementing the exchanging step and the incorporating the Prakasam macroblock adaptive field/frame coding scheme, has wherein the method further generating said

group with said particular value while above a predetermined standard level for a bitstream conveying said two macroblocks (Jeon: paragraph [0033], lines 1-10); and generating said groups without said particular value while below said predetermined standard level for said bitstream (Jeon: paragraph [0055], lines 1-11), as in the claims.

Jeon discloses an apparatus (Jeon: paragraph [0055], lines 1-4), comprising: an element configured to exchange a particular value of a plurality of values, each of said values defining which of said two blocks use which of a plurality of motion vectors (Jeon: paragraph [0023], lines 1-12) based upon one of a plurality of prediction types (Jeon: paragraph [0005], lines 1-6), wherein said prediction types include (i) a first prediction type of said two blocks using a first reference picture list (Jeon: paragraph [0007], lines 1-10), (ii) a second prediction type of said two blocks using a second reference picture list (Jeon: paragraph [0007], lines 11-15), (iii) a third prediction type of said two blocks using a bidirectional prediction (Jeon: paragraph [0004], lines 1-4: bi-directional mode) and (iv) a fourth prediction type of said two blocks using an intra prediction (Jeon: paragraph [0004], lines 1-4: intra-mode); and an element configured to represent said motion for said two blocks with a group comprising said particular value and up to all of said motion vectors (Jeon: paragraph [0055], lines 1-12), as in claim 13. However, Jeon fails disclose exchanging a particular value with a memory and associated circuitry wherein said exchanging includes at least one of reading to from said memory and writing to said memory as a part of the apparatus, of the fact that the two blocks using a macroblock adaptive field/frame coding scheme, as in the claim. Kato discloses an apparatus (Kato: figure 1) for representing a motion for two blocks (Kato: column 34, lines 65-67; column 35, lines 1-20) by using a memory and associated circuitry (Kato: column 23, lines 40-50) in order to perform the motion vector

calculations for predictions (Kato: column 1, lines 50-65). Accordingly, given this teaching, it would have obvious for one of ordinary skill in the art to incorporate the Kato memory and associated circuitry and exchanging means into the Jeon apparatus in order to more efficiently perform the Jeon calculations for predictions (Jeon: paragraph [0053], lines 10-13). The Jeon apparatus, now implemented in the Kato memory and associated circuitry for implementing the exchanging means, has a majority of the features of claim 1, however, the Jeon-Kato combination still fails to address having the two blocks using a macroblock adaptive field/frame coding scheme, as in the claim. Prakasam discloses the use of a macroblock adaptive field/frame coding scheme (Prakasam: paragraph [0069], lines 1-11; paragraph [0071], lines 1-7; paragraph [0072], lines 10-17) in order to minimize storage requirements in the references (Prakasam: paragraph [0074], lines 1-3). Accordingly, given this teaching it would have been obvious for one of ordinary skill in the art at the time of the invention to incorporate the Prakasam teaching of using a macroblock adaptive field/frame coding scheme into the Jeon-Kato combination in order to minimize the storage requirements of the reference buffers/memories therein. The Jeon apparatus, now implemented in the Kato memory and associated circuitry for implementing the exchanging means and the incorporating the Prakasam macroblock adaptive field/frame coding scheme, has all of the features of claim 13.

Regarding claim 14, the Jeon apparatus, now implemented in the Kato memory and associated circuitry for implementing the exchanging means and the incorporating the Prakasam macroblock adaptive field/frame coding scheme, has wherein said group has at most a plurality of bits that is less than a maximum number of bits representing every unique possibility for said motion vectors (Jeon: paragraph [0055], lines 1-8), as in the claims.

Regarding claims 15-16, the Jeon apparatus, now implemented in the Kato memory and associated circuitry for implementing the exchanging means and the incorporating the Prakasam macroblock adaptive field/frame coding scheme, has wherein said group includes at most two vectors (Jeon: paragraph [0048], lines 1-8), as in the claims.

Regarding claim 17, the Jeon apparatus now incorporating the Kato memory and associated circuitry for implementing the exchanging step, has a coding circuit configured to encode said particular value within a bitstream (Jeon: paragraph [0055], lines 1-6), as in the claim.

Regarding claim 18, the Jeon apparatus, now implemented in the Kato memory and associated circuitry for implementing the exchanging means and the incorporating the Prakasam macroblock adaptive field/frame coding scheme, has a decoder circuit configured to decode said particular value from a bitstream (Kato: figure 5), as in the claim.

Regarding claim 19, the Jeon apparatus, now implemented in the Kato memory and associated circuitry for implementing the exchanging means and the incorporating the Prakasam macroblock adaptive field/frame coding scheme, has wherein a first of said values defines using none of said motion vectors (Jeon: paragraph [0005], lines 4-7); a second of said values defines a first prediction type (Jeon: paragraph [0006], lines 1-3); a third of said values defines a second prediction type (Jeon: paragraph [0006], lines 4-7); a fourth of said values defines said bidirectional prediction type (Jeon: paragraph [0006], lines 8-14), as the claim.

Jeon discloses an apparatus (Jeon: paragraph [0055], lines 1-4), comprising: an element storing a group (Jeon: paragraph [0006], lines 1-5); an element exchanging a particular value of a plurality of values, each of said values defining which of said two blocks use which of a plurality

of motion vectors (Jeon: paragraph [0023], lines 1-12) based upon one of a plurality of prediction types (Jeon: paragraph [0005], lines 1-6); an element representing said motion for said two blocks with a group comprising said particular value and up to all of said motion vectors (Jeon: paragraph [0055], lines 1-12), wherein said prediction types include (i) a first prediction type of said two blocks using a first reference picture list (Jeon: paragraph [0007], lines 1-10), (ii) a second prediction type of said two blocks using a second reference picture list (Jeon: paragraph [0007], lines 11-15), (iii) a third prediction type of said two blocks using a bidirectional prediction (Jeon: paragraph [0004], lines 1-4: bi-directional mode) and (iv) a fourth prediction type of said two blocks using an intra prediction (Jeon: paragraph [0004], lines 1-4: intra-mode); and an element configured to represent said motion for said two blocks with a group comprising said particular value and up to all of said motion vectors (Jeon: paragraph [0055], lines 1-12), as in claim 20. However, Jeon fails disclose exchanging a particular value with a memory and associated circuitry wherein said exchanging includes at least one of reading to from said memory and writing to said memory as a part of the apparatus, of the fact that the two blocks using a macroblock adaptive field/frame coding scheme, as in the claim. Kato discloses an apparatus (Kato: figure 1) for representing a motion for two blocks (Kato: column 34, lines 65-67; column 35, lines 1-20) by using a memory and associated circuitry (Kato: column 23, lines 40-50) in order to perform the motion vector calculations for predictions (Kato: column 1, lines 50-65). Accordingly, given this teaching, it would have obvious for one of ordinary skill in the art to incorporate the Kato memory and associated circuitry and exchanging means into the Jeon apparatus in order to more efficiently perform the Jeon calculations for predictions (Jeon: paragraph [0053], lines 10-13). The Jeon apparatus, now implemented in the Kato memory and

associated circuitry for implementing the exchanging means, has a majority of the features of claim 1, however, the Jeon-Kato combination still fails to address having the two blocks using a macroblock adaptive field/frame coding scheme, as in the claim. Prakasam discloses the use of a macroblock adaptive field/frame coding scheme (Prakasam: paragraph [0069], lines 1-11; paragraph [0071], lines 1-7; paragraph [0072], lines 10-17) in order to minimize storage requirements in the references (Prakasam: paragraph [0074], lines 1-3). Accordingly, given this teaching it would have been obvious for one of ordinary skill in the art at the time of the invention to incorporate the Prakasam teaching of using a macroblock adaptive field/frame coding scheme into the Jeon-Kato combination in order to minimize the storage requirements of the reference buffers/memories therein. The Jeon apparatus, now implemented in the Kato memory and associated circuitry for implementing the exchanging means and the incorporating the Prakasam macroblock adaptive field/frame coding scheme, has all of features of claim 20.

Jeon discloses a method for representing a motion for two blocks (Jeon: paragraph [0014], lines 1-9), comprising the steps of: generating a representation of said motion for said two blocks, said representation having less than a maximum number of bits capable of representing each possible combination of four motion vectors for said two blocks (Jeon: paragraph [0055], lines 1-13), exchanging said representation (Jeon: paragraph [0023], lines 1-12), as in claim 21. However, Jeon fails disclose exchanging said representation with a memory wherein said exchanging includes at least one of reading to from said memory and writing to said memory to implement steps of the method or the fact that the two blocks use a macroblock adaptive field/frame coding scheme, as in the claim. Kato discloses a method for representing a motion for two blocks (Kato: column 34, lines 65-67; column 35, lines 1-20) by using a memory

and associated circuitry (Kato: column 23, lines 40-50) in order to perform the motion vector calculations for predictions (Kato: column 1, lines 50-65). Accordingly, given this teaching, it would have obvious for one of ordinary skill in the art to incorporate the Kato memory and associated circuitry to implement the exchanging steps in order to perform the Jeon calculations for predictions (Jeon: paragraph [0053], lines 10-13). The Jeon method, now implemented in the Kato memory and associated circuitry for implementing the exchanging step, has all of features of claim 21. The Jeon method, now implemented in the Kato memory and associated circuitry for implementing the exchanging step, has a majority of the features of claim 1, however, the Jeon-Kato combination still fails to address having the two blocks using a macroblock adaptive field/frame coding scheme, as in the claim. Prakasam discloses the use of a macroblock adaptive field/frame coding scheme (Prakasam: paragraph [0069], lines 1-11; paragraph [0071], lines 1-7; paragraph [0072], lines 10-17) in order to minimize storage requirements in the references (Prakasam: paragraph [0074], lines 1-3). Accordingly, given this teaching it would have been obvious for one of ordinary skill in the art at the time of the invention to incorporate the Prakasam teaching of using a macroblock adaptive field/frame coding scheme into the Jeon-Kato combination in order to minimize the storage requirements of the reference buffers/memories therein. The Jeon method, now implemented in the Kato memory and associated circuitry for implementing the exchanging step and the incorporating the Prakasam macroblock adaptive field/frame coding scheme, has all of the features of claim 21.

Regarding claim 22, the Jeon method, now implemented in the Kato memory and associated circuitry for implementing the exchanging step and the incorporating the Prakasam

macroblock adaptive field/frame coding scheme, has wherein said representation comprises a binary representation (Jeon: paragraph [0006], lines 1-13), as in the claim.

Regarding claims 23-25, the Jeon method, now implemented in the Kato memory and associated circuitry for implementing the exchanging step and the incorporating the Prakasam macroblock adaptive field/frame coding scheme, has wherein said representation is configured to accommodate (i) a first number of possible vectors for a first of said motion vectors for a first block of said two blocks (Jeon: paragraph [0006], lines 1-4), (ii) a second number of possible vectors for a second of said motion vectors for said first block (Jeon: paragraph [0006], lines 5-7), (iii) a third number of possible vectors for a third of said motion vectors for a second block of said two blocks and (Jeon: paragraph [0006], lines 8-13) (iv) a fourth number of possible vectors for a fourth of said motion vectors for said second block (Jeon: paragraph [0005], lines 1-5), as in the claims.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy S. Rao whose telephone number is (571)-272-7337. The examiner can normally be reached on Monday-Friday 8 hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571)-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Andy S. Rao
Primary Examiner
Art Unit 2621

asr
September 14, 2007